

## ABSTRACT

A PLL frequency synthesizer is provided that enables improvement of near C/N, shortening of lockup time, and reduction of residual FM to be achieved. In this  
5 apparatus, phase comparison is performed by a phase comparator (101) on a signal input from an input terminal I1 and a signal output from a frequency divider (107), and a current signal corresponding to the phase difference is converted to a voltage signal by one of a plurality  
10 of loop filters (103 or 104) with different cutoff frequencies, and is output to a voltage controlled oscillator (106). The output to a voltage controlled oscillator (106) generates a frequency signal corresponding to the input voltage signal. The  
15 oscillation signal is branched at junction point P1, and is output to the frequency divider (107) and output terminal O1. A variable capacitance capacitor (108) is connected to junction point P2 further branching subsequent to junction point P1 and its capacitance is  
20 controlled in accordance with loop filter switching control by a control circuit (109).